

New Plant records for the Upper Gangetic Plain¹

BY

KR. N. BAHADUR, R. DAYAL AND D. P. RATURI

Systematic Botany Branch, Forest Research Institute, Dehra Dun

(With two plates)

Five species are reported in this paper as new records for the Upper Gangetic Plain. These are : *Erigeron karvinskianus* DC., *Eupatorium riparium* Regel, *Hibiscus furcatus* Roxb., *Indigofera arrecta* Hochst. and *Justicia prostrata* (Clarke) Gamble. Apart from being a new record for the above-mentioned area, *H. furcatus* is also reported here for the first time from the N.W. Himalayas. Illustration for this taxon as well as for *E. riparium* are provided.

During the course of identification of plants in the F.R.I. (Dehra Dun) Herbarium the following five species were detected by the authors to be new records for the Upper Gangetic Plain. This area of c. 480,000 sq km is defined to cover the States of Uttar Pradesh, Delhi, East Rajasthan including the former Ajmer-Merwara and the northern portion of Madhya Pradesh including the former Madhya Bharat, Bhopal and Vindhya Pradesh ; places above 700 m of altitude within the area are, however, excluded.

These plants were not included by Duthie (1903-29) in his 'Flora of the Upper Gangetic Plain', nor have they been reported by subsequent botanists working on the vegetation of this region. The present paper, therefore, records for the first time the occurrence of these taxa in this region.

Apart from being a new record for the Upper Gangetic Plain, *Hibiscus furcatus* Roxb. is also reported here for the first time from N.W. Himalayas. *Eupatorium riparium* Regel, an ornamental plant from the Americas, does not find mention in any of the Indian Floras. Recently, Raizada & Saxena (1967) have listed it as occurring occasionally under 'apparently wild' condition in the vicinity of Mussoorie. The plant is, however, reported here as occurring under fully naturalised condition in our country. Illustrations for both these plants are provided.

Relevant synonymy, brief description, phenology, general distribution and places of collection (within the area and in some cases in

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adjoining areas also) of each species are given. The descriptions are mainly based on the specimens collected from within the region and quoted in the paper, but they have invariably been compared with the original descriptions of the types and also with the accounts appearing in various earlier publications cited under synonymy. The specimens quoted in the paper, unless otherwise stated, are lodged in Dehra Dun Herbarium. The species are arranged alphabetically.

Erigeron karvinskianus DC.

Prod. 5 : 285 (1836) ; Standley *Trees & Shrubs Mexic.* 2(5) : 1499 (1961).

Syn. *E. mucronatus* DC. *loc. cit.* (1836) ; Fyson *Hillt. Fl.* 1: 223 (1915) ; Gamble *Fl. Mad.* 2 (4) : 682 (1921) ; Raizada in *Indian For.* 85 (11) : 679 (1959).

E. trilobus Sonder in *Hamb. Gart. Zeit.* 12 : 78 (1856) *excl. syn.*

E. karvinskianus var. *mucronatus* Hieron. in Engler *Bot. Jahrb.* 28 : 585 (1900).

Vittadinia triloba auct. non DC. *nom. al.* Fyson *loc. cit.* (1915) ; Standley *loc. cit.* (1961).

V. australis auct. non. A. Rich. *nom. al.* Fyson *loc. cit.* (1915) ; Gamble *loc. cit.* (1921).

A slender, decumbent herb, 60 cm long or less. *Leaves* alternate, lanceolate, entire or lobed, lobes mucronate, base attenuate, glabrous or minutely ciliate. *Heads* long-peduncled and solitary, terminal or axillary ; *ray-florets* white or pinkish ; *disc-florets* yellowish. *Ligules* biseriate. *Pappus* double.

Flowering and fruiting : Throughout the year.

Indigenous to Mexico and Central & South Americas where it was erroneously called *Vittadinia triloba* DC., earlier. Cultivated and run wild in Nilgiris, Mussoorie and Dehra Dun. Common along water channels.

In Nilgiris it has for long been known under the wrong name of *Vittadinia australis* A. Rich. which is an Australian species and is altogether different (*cf.* Fyson *loc. cit.* 1915 & Gamble *loc. cit.* 1921).

Dehra Dun : Ballupur (Dec. 1965) R. Dayal 460 ; New Forest (Apr. 1969) H. B. Naithani 6555 ; Tons Nullah (Apr. 1969) H. B. Naithani 6556 ! ; Bijapur Canal (June 1969) H. B. Naithani 6940.

Eupatorium riparium Regel

Gartenfl. 324 (1866) ; *Standley Trees & Shrubs Mexic.* 2 (5) : 1464 (1961) ; Raizada & Saxena in *J. Bombay nat. Hist. Soc.* 64 (1) : 83 (1967). (Plate I).

Syn. *E. flexicaule* Schnittspahn *Zeitschr. Gartenb. ver. Darmstadt* 6 : Anlage 2 : 5 (1857) *nom. nud.*

E. riparium Schultz in Schnittspahn *loc. cit.* (1857) *nom. nud.*

E. harrisii Urban *Symb. Antill.* 1 : 460 (1900).

A slender, herbaceous plant with terete, flexuous, finely pubescent, at length somewhat lignescent stems. *Leaves* opposite, lanceolate, attenuate to each end, serrate from near the middle outward, 3-nerved from the base, 5-10 × 1-2.5 cm, sparingly pubescent on the nerves. *Corymbs* numerous, small, paniced ; *phyllaries* pale-green, lanceolate, scarious-edged ; *corollas* white.

Flowering : January-March. *Fruiting* : April-June.

Indigenous to Mexico and West Indies. Flowers copiously. In Mexico it has long been valued for hot-house cultivation. Cultivated in gardens in northern India. Run wild in Mussoorie and Dehra Dun.

Dehra Dun : Bamboo Plantation, F.R.I. (March 1965) *R. Dayal* 4 ! ; near M.F.P. Nursery, F.R.I. (January 1967) *H. B. Naithani* 1928 ; Teak Gate Road, New Forest (May 1967) *R. Dayal* 21759 ; Tons Nullah (Feb. 1969) *R. Dayal* 21800.

Mussoorie : Bhatta Falls, 1494 m (March and April 1961) *H.O. Saxena* 1668 and 1820 (b).

This plant is not mentioned in any of the Indian Floras. Raizada and Saxena (1967) have, however, mentioned it as occurring occasionally near Bhatta Falls in Mussoorie. But, most probably, not being sure of its naturalised condition, on account of the collection being only from one small locality, they have preferred to call it 'apparently wild'. Now, since this species has also been collected from at least 3 different localities in Dehra Dun, it can safely be said to have escaped from cultivation and thus become completely naturalised in our country. It has already established itself in Dehra Dun, and it would be interesting to watch its further spread, particularly in the plains districts.

Hibiscus furcatus Roxb.

Hort. Beng. 51 (1814) ; *DC. Prod.* 1 : 449 (1824) ; *Spr. Syst.* 3 : 102 (1826) ; *Roxb. Fl. Ind.* 3 : 204 (1832) ; *W. & A. Prod.* 1 : 48 (1834) ;

Dalz. & Gibbs. *Bomb. Fl.* 19 (1861); Mast. in Hook. *f. Fl. Brit. Ind.* 1 : 335 (1874); Prain *Beng. Pl.* 1 : 267 (1903); Talbot *For. Fl.* 1 : 119 (1909); Gamble *Fl. Mad.* 1 (1) : 97 (1915); Haines *Bot. Bihar & Orissa* 2 : 67 (1921); van Waalkes in *Blumea* 14 (1) : 59, 84 (1966). (Plate II).

Syn. *H. rostellatus* Guill. et Perr. *Fl. Seneg.* 1 : 55 (1830); Mast. in Oliv. *Fl. Trop. Afr.* 1 : 201 (1868); Keay in *Fl. W. Trop. Afr.* 2nd ed. 11 (2) : 346 (1958).

H. aculeatus Roxb. *Fl. Ind.* 3 : 206 (1832).

H. hispidissimus Griff. *Notul.* 4 : 52 (1851).

H. furcellatoides Hochr. in *Ann. Conserv. & Jard. Bot. Geneve* 20 : 157 (1917).

An erect (or rambling ?), suffruticose, slender, shrub up to 4 m high with pungent, recurved prickles. *Leaves* 5 cm across, entire or slightly lobed, cordate, pubescent, crenate; *stipules* up to 0.5 cm long, linear-lanceolate. *Flowers* large (5 cm in diam.), axillary, sub-racemose, distant with 10-12 setose forked bracteoles; *calyx* enlarged in fruit, very hispid and with shining bristles; *corolla* yellow with a crimson centre.

Capsule 1 cm long, enclosed in the enlarged calyx.

Flowering : September, October. *Fruiting* : November, December.

Tropics of the old world. Common in hotter parts of India, ascending to 1220 m in N. W. Himalayas. (This species was so far known to occur in the plains of peninsular India, Bengal and Orissa.)

Dehra Dun : Saura Village, Raipur (Sept. 1968) *D. P. Raturi* 6251 ; Song River, Raipur (Sept. 1968) *D. P. Raturi* 6252 ; Pump-House, near Ordnance Factory (Sept. 1968) *D. P. Raturi* 6253.

Tehri-Garhwal : Tehri, 1219 m (Sept. 1875) *anonymous s.n.*

Apart from being a new record for the Upper Gangetic Plain, this species is reported here for the first time from the N.W. Himalayas, namely Tehri-Garhwal.

It is interesting to note that the specimens of this species collected from North India have a very short peduncle (5-7 mm), a character which compares favourably with Roxburgh's description of the type. The specimens from South India available in Dehra Dun Herbarium, however, show a very long peduncle (4-5 cm) and agree with the description of Talbot (1909) and others. This variation has to be looked into, and for this, further material from South India needs to be examined.



Eupatorium riparium Regel

1. a portion of the plant ; 2. inflorescence ; 3. phyllaries ; 4. a single flower ;
5. seed with pappus.



Hibiscus furcatus Roxb.

1. a portion of the plant ; 2. stipules and bractioles ; 3. capsule with enlarged calyx ;
4. opened capsule showing seeds.